

## CURRENT STATUS OF THE CLAIMS

### In the Claims

The following is a marked-up version of the claims with the language that is underlined (“      ”) being added and the language that contains strikethrough (“      ”) being deleted:

1. Currently Amended) A chip-level electronic package, comprising:
  - at least one monolithic waveguide having:
    - a waveguide core disposed in a fixed position on a lower cladding,
    - an air-gap cladding around a portion of the waveguide core, and
    - an overcoat layer engaging a portion of the air-gap cladding and engaging the lower cladding, wherein the air-gap cladding is completely bound on all sides by the overcoat layer, the lower cladding, and the waveguide core.
2. (Canceled)
3. (Previously Presented) The chip-level electronic package of claim 2 1, further comprising:
  - a lead; and
  - at least one air-gap layer disposed substantially under a portion of the lead and wherein the at least one waveguide is adjacent the air-gap layer.
- 4-5. (Canceled)
6. (Previously Presented) The chip-level electronic package of claim 1, further comprising:
  - a coupling element adjacent to the waveguide core and engaging the air-gap cladding.
7. (Original) The chip-level electronic package of claim 1, wherein the waveguide core includes at least one coupling element.

8. (Original) The chip-level electronic package of claim 7, wherein the at least one coupling element is a volume grating coupling element.

9. (Previously Presented) The chip-level electronic package of claim 7, wherein the air-gap cladding is disposed around a portion of one of the at least one coupling element.

10-14. (Canceled)

15. (Original) The chip-level electronic package of claim 1, wherein the waveguide core is adjacent to a lower waveguide cladding.

16-28 (Canceled)

29. (Currently Amended) A method of operating a chip-level electronic package comprising:  
coupling an optical signal to a one monolithic waveguide in the wafer-level electronic package; and

communicating the optical signal through the waveguide, the waveguide having a waveguide core disposed in a fixed position on a lower cladding, an air-gap cladding around a portion of the waveguide core, and an overcoat layer engaging a portion of the air-gap cladding and engaging the lower cladding, wherein the air-gap cladding is completely bound on all sides by the overcoat layer, the lower cladding, and the waveguide core.

30. (Canceled)

31. (Previously Presented) The chip-level electronic package of claim 1, wherein the overcoat layer is selected from silicon dioxide, silicon nitride, polyimides, polynorbornenes, epoxides, polyarylenes ethers, and parylenes.

32. (Previously Presented) The chip-level electronic package of claim 1, wherein the overcoat layer is selected from polyimides, polynorbornenes, epoxides, polyarylenes ethers, and parylenes.
33. (Previously Presented) The chip-level electronic package of claim 1, wherein the overcoat layer is selected from polyimides and polynorbornenes.
34. (Withdrawn) A chip-level electronic package, comprising:
  - at least one waveguide having a waveguide core, a sacrificial layer around a portion of the waveguide cores, and an overcoat layer engaging a portion of the sacrificial layer.
35. (Withdrawn) The chip-level electronic package of claim 34, wherein the overcoat layer is selected from silicon dioxide, silicon nitride, polyimides, polynorbornenes, epoxides, polyarylenes ethers, and parylenes.
36. (Withdrawn) The chip-level electronic package of claim 34, wherein the sacrificial layer is selected from polyimides, polynorbornenes, epoxides, polyarylenes ethers, and parylenes.
37. (Withdrawn) The chip-level electronic package of claim 34, wherein the sacrificial layer is selected from polypropylene carbonate, polyethylene carbonate, polynorborene carbonate.
38. (Withdrawn) The chip-level electronic package of claim 34, further comprising:
  - a coupling element adjacent to the waveguide core and engaging the sacrificial layer.
39. (Withdrawn) The chip-level electronic package of claim 34, wherein the waveguide core includes at least one coupling element.
40. (Withdrawn) The chip-level electronic package of claim 39, wherein the at least one coupling element is a volume grating coupling element.

41. (Withdrawn) The chip-level electronic package of claim 34, wherein the sacrificial layer is disposed around a portion of one of the at least one coupling element.

42. (New) A chip-level electronic package, comprising:

at least one monolithic waveguide having:

a waveguide core disposed in a fixed position on a lower cladding,

an air-gap cladding around a portion of the waveguide core, and

an overcoat layer engaging a portion of the air-gap cladding and engaging the lower cladding, wherein the air-gap cladding is bound by the overcoat layer, the lower cladding, and the waveguide core.

43. (New) A method of operating a chip-level electronic package comprising:

coupling an optical signal to a one monolithic waveguide in the wafer-level electronic package; and

communicating the optical signal through the waveguide, the waveguide having a waveguide core disposed in a fixed position on a lower cladding, an air-gap cladding around a portion of the waveguide core, and an overcoat layer engaging a portion of the air-gap cladding and engaging the lower cladding, wherein the air-gap cladding is bound by the overcoat layer, the lower cladding, and the waveguide core.